USDA NRCS
Natural Resources Conservation Service

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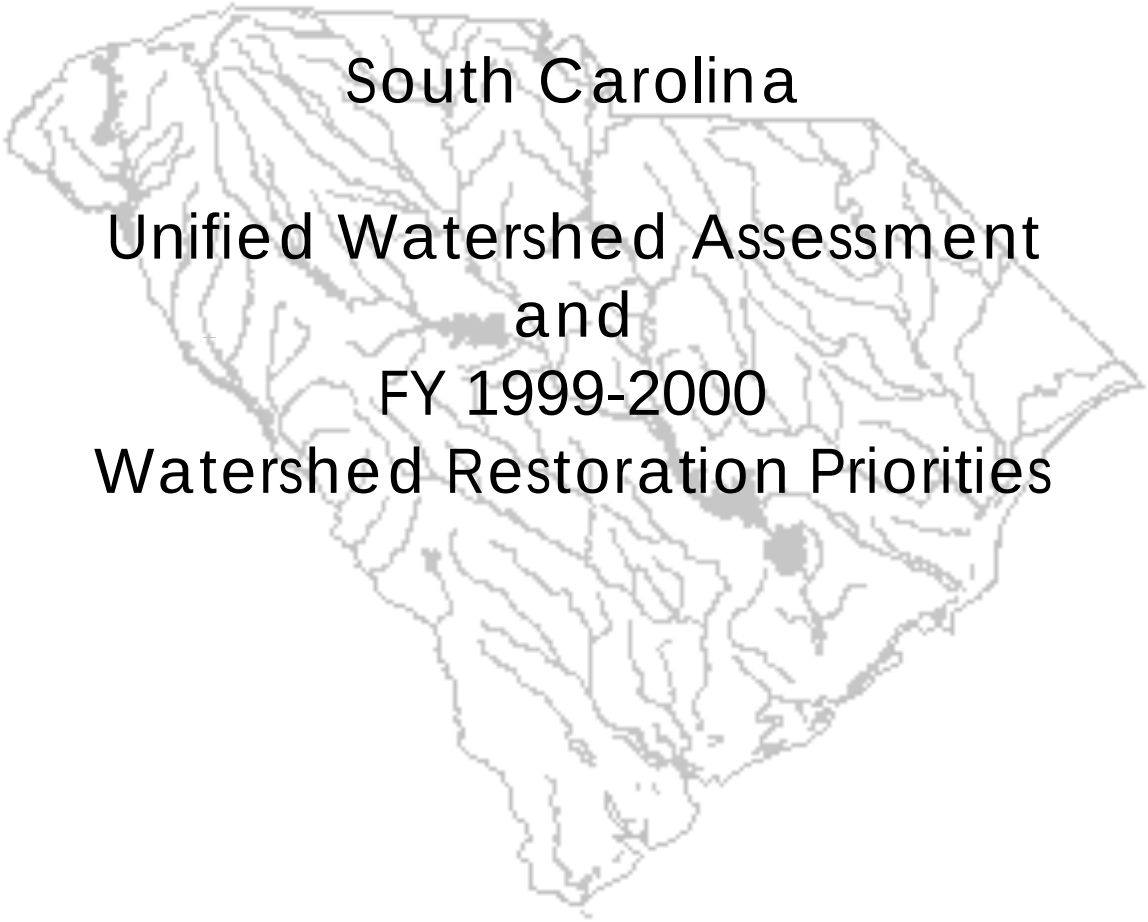
South Carolina Department of Health and Environmental Control



South Carolina

Unified Watershed Assessment and FY 1999-2000 Watershed Restoration Priorities

September 1998

Introduction

The *Clean Water Action Plan (Plan)* was released in February 1998 by the US Environmental Protection Agency (EPA), the US Department of Agriculture (USDA), and other federal agencies. That document outlines a plan to accelerate efforts to protect and restore the nation's water resources. A central element of the *Plan* is a set of actions that are designed to promote a renewed focus by state, federal, tribal, and local governments on (1) identifying watersheds that have critical water quality concerns and (2) working together to focus resources and implement strategies to solve these problems.

In order to achieve this renewed focus on watersheds of particular concern, the *Plan* called upon states to look at all watersheds within their boundaries and determine whether they (1) meet clean water and other natural resource goals and support healthy aquatic systems or (2) are in need of restoration because the waters within them do not meet, or face imminent threat of not meeting, clean water and other natural resource goals. This assessment process is known as the Unified Watershed Assessment (UWA). In addition, states were asked to select Watershed Restoration Priorities (WRP) for fiscal years 1999 and 2000. Federal guidance required the assessment and selection of priorities to be done at the 8-digit hydrologic unit level. The SC Department of Health and Environmental Control (SC DHEC) and the USDA Natural Resources Conservation Service (NRCS) worked with other state and federal stakeholders to complete a Unified Watershed Assessment for South Carolina and to select five watersheds as restoration priorities for FY 1999 and 2000. This document describes the process through which the UWA and WRP selection were completed and the results of that process.

Contents

I.A. SOUTH CAROLINA UNIFIED WATERSHED ASSESSMENT DETERMINATIONS

Representatives of the USDA Natural Resources Conservation Service (NRCS) and the South Carolina Department of Health and Environmental Control (SCDHEC) Bureau of Water met several times in May and June 1998 to outline the process for developing the Unified Watershed Assessment (UWA) component of the *Clean Water Action Plan* for South Carolina. The agencies used federal guidance, the *Final Framework for Unified Watershed Assessments, Restoration Priorities and Restoration Action Strategies* (June 9, 1998), to direct the development of this process.

The Unified Watershed Assessment involved classifying all 8-digit watersheds in South Carolina into one of the following four categories:

> *Category I - Watersheds in Need of Restoration.* These watersheds do not now meet, or face imminent threat of not meeting, clean water and other natural resource goals.
>
> *Category II. Watersheds Meeting Goals, Including Those Needing Action to Sustain Water Quality.* These watersheds meet clean water and other natural resource goals and standards and support healthy aquatic systems.
>
> *Category III - Watersheds with Pristine/Sensitive Aquatic System Conditions on Lands Administered by Federal, State, or Tribal Governments.*
>
> *Category IV - Watersheds with Insufficient Data to Make an Assessment*.

1. Compilation of Data

SC DHEC maintains an extensive water quality and macroinvertebrate community monitoring network that includes close to 1000 stations throughout the state. Data from this network were used to compile South Carolina's 1998 *List of Impaired Waters Targeted for Water Quality Management Action,* also known as the 303(d) list. SCDHEC and NRCS felt that the data generated by this monitoring network constitute sufficient information for assessment of all 8-digit watersheds in the state. Thus, no watersheds were classified as Category IV. In addition, because the 303(d) list is a compilation of waters that do not currently meet the water quality goals established for them, the agencies deemed it to be an appropriate reference for judging whether a watershed currently meets clean water and other natural resource goals.

2. Establishment of Preliminary Categorization Criteria

According to the federal guidance, "Category I watersheds are any 8-digit watersheds in which reasonably current information shows nonattainment of clean water or other natural resource goals in more than about 15-25% of the assessed waters or natural resource components of the watershed." SCDHEC and NRCS felt that this guidance provided a reasonable means of differentiating Category I and II watersheds and chose 20% as an acceptable threshold.

3. Preliminary Results

For the SC Unified Watershed Assessment, watersheds in which more than 20% of assessed water quality and macroinvertebrate community monitoring stations are impaired were classified as Category I. This resulted in 25 Category I watersheds and 7 Category II watersheds for South Carolina (see map I.B. and table I.C.).

4. Stakeholder Participation

The preliminary recommendation for categorization of South Carolina watersheds was presented on July 9, 1998, at a meeting of federal and state agency and organization stakeholders (see list below). The rationale for establishing the categories was discussed, as were the resulting watershed classifications. The stakeholder group approved of the process and categorization recommended by NRCS and SC DHEC. Input from the group, particularly the US Forest Service, indicated that no watersheds in the state that contain significant areas of public lands are sufficiently pristine to be considered for Category III. Thus, no watersheds in South Carolina were classified as Category III.

Participating Stakeholders:
USDA Natural Resources Conservation Service
SC Department of Health and Environmental Control - Bureau of Water
Farm Service Agency
Grazing Lands Coalition*
SC Department of Natural Resources
US Army Corps of Engineers*
SC Forestry Commission*
Clemson Extension Service*
USDA Forest Service
US Fish & Wildlife Service*
SC State University
SC Department of Agriculture*
SC Association of Conservation Districts
SC Farm Bureau
SC Department of Transportation
SC Department of Parks, Recreation, and Tourism
Lake & Watershed Association of SC*
US Geological Survey
SCDHEC - Office of Ocean & Coastal Resource Management
SCDHEC - Bureau of Land and Waste Management

*No representative of this agency/organization was present at the stakeholder meeting, although they were invited and sent all supporting materials.

To foster cooperation and coordination of watershed management, the Catawba Indian Nation and the North Carolina Department of Environment and Natural Resources were advised of the draft SC UWA determinations in June 1998. The Georgia Department of Natural Resources was advised of the draft UWA determinations in August 1998.

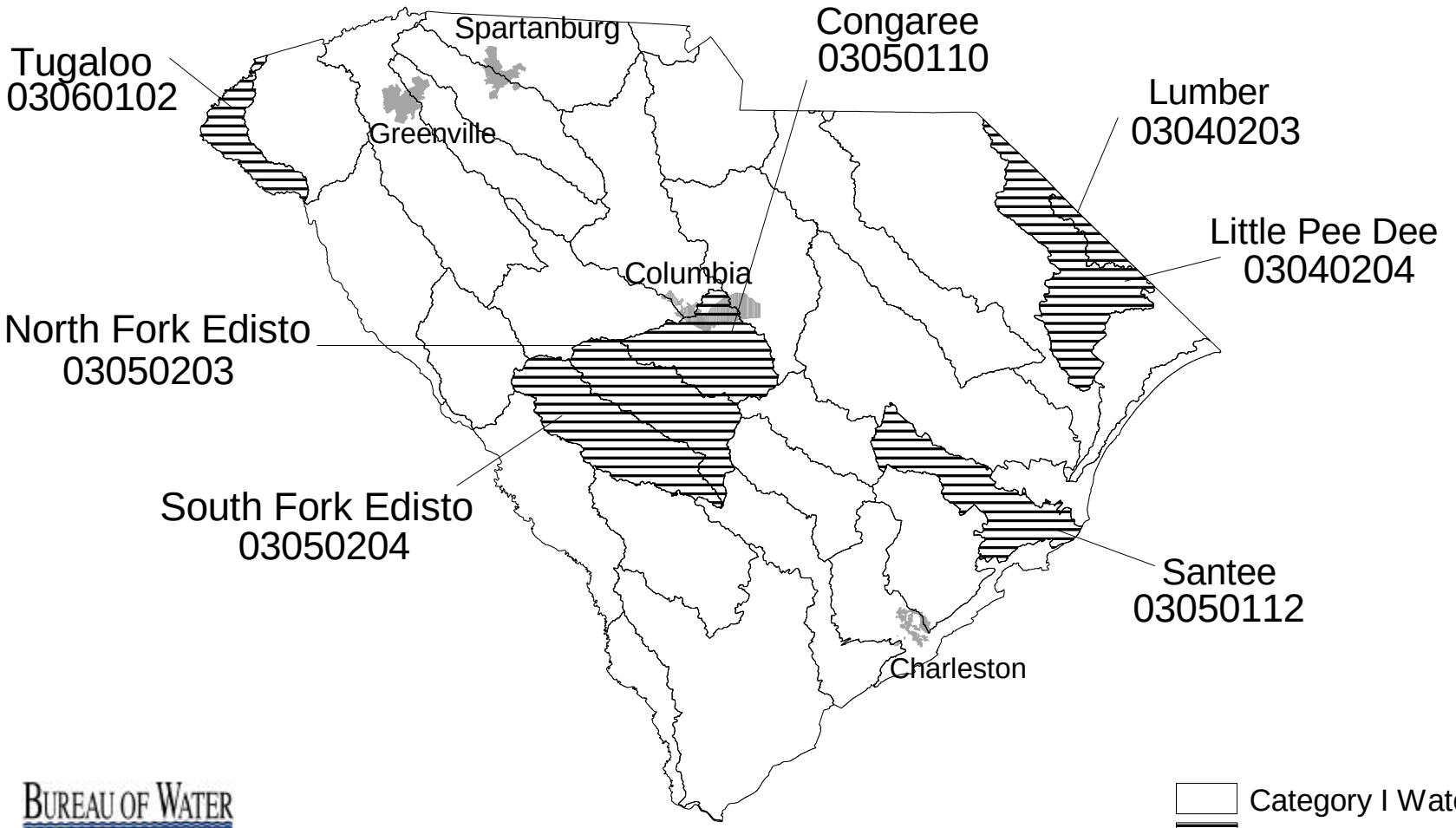
5. Public Review

To allow an opportunity for public review, an announcement describing the draft South Carolina UWA process and Watershed Restoration Priorities was mailed on July 31, 1998 to over 400 stakeholders throughout the state. This notice was also posted on the SC DHEC web site at: http://www.state.sc.us/dhec/eqchome.htm. The notice provided an opportunity for interested parties to obtain a more detailed packet of information on the draft UWA process and results and FY 1999-2000 Restoration Priorities and included agency contacts from whom more information could be obtained. A copy of the public notice is enclosed as Attachment A.

6. Incorporation of Comments Received

All responses received during the August 1 - August 31,1998, comment period were reviewed and incorporated as appropriate into the Unified Watershed Assessment. Responses received are enclosed as Attachment B.

I.B. Unified Watershed Assessment Categorization



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I.C. Unified Watershed Asessment: Water Quality Data and UWA Categorization

Watershed Name	Hydrologic Unit Code	%of Assesed Sites That Are Impaired	%of Impairment in Watershed Attributed to Each Cause*							UWA Category
			Fecal Coliform Bacteria	Metals	Low Dissolved Oxygen	Unknown (Impaired Macroinvertebrate Community)	PH	Phosphorus	Other**	
Pee Dee	03040201	31	56	25	25	19	19			I
Lynches	03040202	30	57	29		29	7			I
Lumber	03040203	0								II
Little Pee Dee	03040204	17	25	100	25					II
Black	03040205	24	50		13	38	13			I
Waccamaw	03040206	87	38	8	92	8	38			I
Coastal Carolina-Sampit	03040207	45	80	20	40		20			I
Lake Wylie	03050101	43	83	17						I
Catawba	03050103	57	75	7	11	7	4	11		I
Wateree	03050104	46	54	15	15			31	8	I
Upper Broad	03050105	50	92	15		8				I
Lower Broad	03050106	47	67	33		20			14	I
Tyger	03050107	44	88	29		12				I
Enoree	03050108	63	90	15	5	5	5			I
Saluda	03050109	29	66	8	11	5	11	13	3	I
Congaree	03050110	18	100							II
Lake Marion	03050111	28	50	14	14		7	14		I
Santee	03050112	11	100							II
Cooper	03050201	33	58	8	42		17		16	I
SC Coastal	03050202	54	73	13	33					I
North Fork Edisto	03050203	12	100							II
South Fork Edisto	03050204	11	100							II
Edisto	03050205	31	80		20					I
Four Hole Swamp	03050206	38	100							I
Salkehatchie	03050207	43	83	8			8	8		I
Broad-St. Helena	03050208	50	42	8	46	17				I
Seneca-Keowee	03060101	47	57	38		10				I
Tugaloo	03060102	20	100			33				II
Upper Savannah	03060103	33	50	14		43		7		I
Middle Savannah	03060106	31	67	44						I
Stevens	03060107	25	50	25		50				I
Lower Savannah	03060109	25			100					I

* These may total more than 100% because some sites have multiple causes of impairment.

** Other causes of impairment identified include pesticides, contaminated sediment, and contaminated crab and shrimp tissue.

II. A. SELECTION OF SOUTH CAROLINA WATERSHED RESTORATION PRIORITIES

Representatives of the USDA Natural Resources Conservation Service (NRCS) and the South Carolina Department of Health and Environmental Control (SC DHEC) Bureau of Water met several times in May and June 1998 to develop a process for selecting Category I watersheds to be deemed priorities for FY 1999 and 2000. The agencies used federal guidance, the *Final Framework for Unified Watershed Assessments, Restoration Priorities and Restoration Action Strategies* (June 9, 1998), to direct the development of this process.

1. Compilation and Analysis of Data

NRCS and SC DHEC collected and analyzed background data on the thirty-two 8-digit hydrologic units in the state. SC DHEC provided data from their ambient monitoring program on existing water quality and macroinvertebrate community health. NRCS provided data on potential agricultural sources of water pollution, specifically: cropland erosion (acres with soil loss > T, interpolated from Natural Resources Inventory data); livestock and poultry (lbs. steady live weight, interpolated from S.C. Agricultural Statistics); and agrichemical use (interpolated from S.C. Agricultural Statistics).

2. Preliminary Prioritization of Watersheds

Each using their respective data, NRCS and SC DHEC independently prioritized the 8-digit watersheds. The two agencies then met in early June to review the assembled data and each agency's ranking and to reach consensus on five priority watersheds. In addition to the data, the group considered existing restoration activities and the state's coastal nonpoint source program. The prospects for improving surface water quality in the priority watersheds were also considered.

SCDHEC and NRCS cooperatively selected the following five watersheds as preliminary recommended priorities for FY 1999 - 2000:

03040201	Pee Dee	03050206	Four Hole Swamp
03040206	Waccamaw	03060101	Seneca-Keowee
03050103	Catawba		

3. Stakeholder Review and Participation

Copies of NRCS and SC DHEC data and the preliminary list of priority watersheds were sent to natural resource agencies and groups having statewide responsibilities and/or interests. Also, a meeting was held on July 9, 1998, to discuss the prioritization with these stakeholders. At the conclusion of this meeting, participants were invited to submit data that would either add support for the NRCS/SC DHEC prioritization or support selection of another watershed as a priority. The following stakeholders were involved in this review:

- Natural Resources Conservation Service
- SC DHEC - Bureau of Water
- Farm Service Agency
- Grazing Lands Coalition*
- SC Department of Natural Resources
- US Army Corps of Engineers*
- SC Forestry Commission*
- Clemson Extension Service*
- USDA Forest Service
- US Fish & Wildlife Service*
- SC State University
- SC Department of Agriculture*
- SC Association of Conservation Districts
- SC Farm Bureau
- SC Department of Transportation
- SC Department of Parks, Recreation, & Tourism
- Lake & Watershed Association of SC*
- US Geological Survey
- SC DHEC - Office of Ocean & Coastal Resource Management
- SC DHEC- Bureau of Land & Waste Management

*No representative of this agency/organization was present at the stakeholder meeting, although they were invited and sent all supporting materials.

To foster cooperation and coordination of watershed management, the Catawba Indian Nation and the North Carolina Department of Environment and Natural Resources (NC DENR) were advised of the draft

SC Watershed Restoration Priorities. A letter of support for selection of the Catawba watershed was received from the Catawba Indian Nation (see Attachment B). A letter of response was also received from NC DENR (see Attachment B). Although none of the priority watersheds are shared with Georgia, the GA Department of Natural Resources was advised of the draft SC Watershed Restoration Priorities in August 1998.

4. Selection of Watershed Restoration Priorities

Following the stakeholder meeting, additional materials were received from USGS, SCDNR, and the USDA Forest Service. USGS and the USDA FS submitted supplemental data to be used in the development of watershed restoration action strategies. The comments provided by SCDNR supported selection of the Catawba and Pee Dee watersheds as priorities but recommended that three others be included in lieu of the Waccamaw, Four Hole Swamp, and Seneca-Keowee. The Saluda (03050109) was most strongly recommended by DNR, based on its particular importance from a natural resource perspective. Inclusion of the Saluda watershed as a top priority was strongly supported by the SC Association of Conservation Districts as well. Therefore, this watershed was chosen to replace Four Hole Swamp (03050206) as a priority watershed for FY 1999-2000. After working with stakeholders to refine the selection of priorities, the proposed Watershed Restoration Priorities for FY 1999-2000 are as follows (see map II.B.) :

03040201	Pee Dee	03050109	Saluda
03040206	Waccamaw	03060101	Seneca-Keowee
03050103	Catawba		

Although the other two hydrologic units recommended by SCDNR were not chosen as FY 1999-2000 priorities, SC DHEC and NRCS recognized that these are important Category I watersheds and included them as Priority 2 on the long-term schedule (see II.D.).

5. Long Term-Schedule for Attention to All Category I Watersheds

In addition to selecting five priority watersheds for FY 1999-2000 (Priority 1), SC DHEC and NRCS prioritized the remaining Category I watersheds in order to establish a long-term schedule (see II.D.). Those watersheds that were deemed top priority by either SC DHEC or NRCS, but were not chosen among the five 1999-2000 priorities, were designated as Priority 2. These included the watersheds that were recommended by SCDNR but not chosen as priorities for FY 1999-2000. All other Category I watersheds were designated as Priority 3.

6. Public Review

To allow an opportunity for public review, an announcement describing the draft South Carolina UWA process and Watershed Restoration Priorities was mailed on July 31, 1998 to over 400 stakeholders throughout the state. This notice was also posted on the SC DHEC web site at: http://www.state.sc.us/dhec/eqchome.htm. The notice provided an opportunity for interested parties to obtain a more detailed packet of information on the draft UWA process and results and FY 1999-2000 Restoration Priorities and included agency contacts from whom more information could be obtained. A copy of the public notice is enclosed as Attachment A.

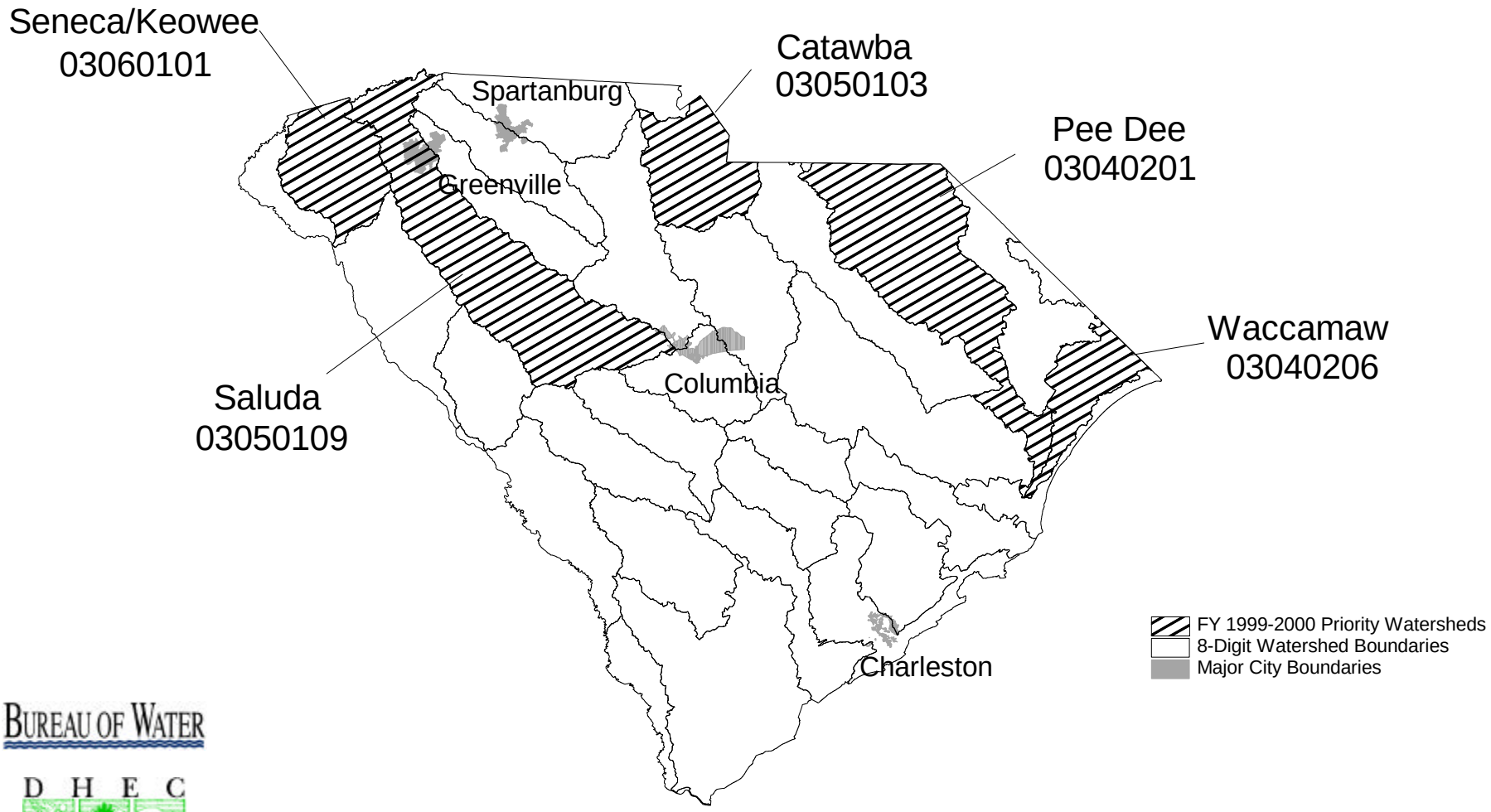
7. Incorporation of Comments Received

All responses received during the August 1 - August 31,1998, comment period were reviewed and incorporated as appropriate into the information provided for the Priority Watersheds. No comments suggesting selection of different watersheds as priorities were received. Comments received are enclosed as Attachment B.

8. Initial Progress on Watershed Restoration Action Strategies

SC DHEC has developed guidance for use of the incremental FY 1999 319 funds expected to be allocated to states in support of the UWA and WRP. This guidance and the projects that are expected to be funded through this program constitute critical first steps in the implementation of Watershed Restoration Action Strategies in the five priority watersheds.

II.B. Watershed Restoration Priorities
Fiscal Year 1999-2000



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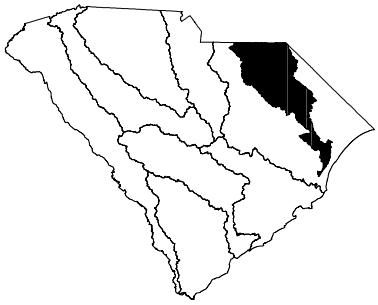
II.C. Data describing the SC Watershed Restoration Priorities for FY 1999-2000

Pee Dee Watershed
03040201



020 010 040 030 070 060 100 080 090 110 050 120 130 150 140 160 170

Mt. Croghan
Pageland
Ruby
Chesterfield
Cherwa
Tatum
Bennettsville
Clio
Patrick
Society Hill
Blenheim
McBee
Hartsville
Dovesville
Clyde
Hartsville
Darlington
Quinby
Sellers
Peedee
Marion
Florence
Pamplico
Poston
Johnsonville
Hemingway
Bucksport
Georgetown

Chesterfield County
Marlboro County
Dillon County
Darlington County
Florence County
Marion County
Horry County
Georgetown County

11-digit Watersheds
County Boundaries
Streams
Lakes
City Boundaries

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Pee Dee Watershed (03040201)

Watershed Characteristics

Land Cover (1989-90 data)

54% Forest
23% Agriculture/Grass
10% Forested Wetlands/Swamps
7% Scrub/Shrub
3% Urban/Built up
2% Water (includes one major lake - Lake Robinson)
1% Non-forested Wetlands

Biodiversity/Habitat

✦ 311 known rare, threatened, and endangered species community locations

Water Supply Intakes

✦ 6 Municipal surface water intakes, including:

City of Bennetsville
Grand Strand Water & Sewer Authority
City of Georgetown
Chesterfield Town
Pageland City
Town of Cheraw

Local Governments

✦ *9 Counties*: Chesterfield, Marlboro, Darlington, Dillon, Florence, Marion, Georgetown, Horry, Williamsburg

✦ *27 Municipalities*: Bennettsville, Blenheim, Bucksport, Cheraw, Chesterfield, Clio, Clyde, Darlington, Dovesville, Florence, Georgetown, Hartsville, Hemingway, Johnsonville, Marion, McBee, Mt. Croghan, Pageland, Pamplico, Patrick, Peedee, Poston, Quinby, Ruby, Sellers, Society Hill, Tatum

Citizens' Groups

✦ *1 active watershed group*: Black Creek Protective Society

Water Quality Information

Water Quality Data

✦ 31% of assessed waters are impaired

Causes of impairment (some waters are impaired by multiple pollutants):

✧ 56% fecal coliform bacteria
✧ 25% dissolved oxygen
✧ 19% copper
✧ 19% pH
✧ 19% unknown (aquatic life)
✧ 6% chromium

Potential Sources of Water Quality Impairment/Problems

✦ 50 NPDES permitted dischargers

✦ Level of compliance with forestry best management practices (BMPs) (based on data for physiographic regions):

✧Compliance with site preparation BMPs: 65-100%
✧Compliance on harvested sites: 81-100%

- ✦ Major nonpoint source contributions may include:
  - ✧ effluent from failed septic tank systems
  - ✧ sediment from agriculture lands
  - ✧ confined poultry & livestock operations
  - ✧ runoff from urban and built up areas

Information on Agricultural Practices

	COUNTIES	HYDROLOGIC UNIT ACRES	ACRES OF CROPLAND	APPROXIMATE AVERAGE EROSION RATE	ACRES > "T" (ESTIMATED)	ACRES > "T" / HYD. UNIT ACRES (%)
	CHESTERFIELD		16,060	3.1 T/AC/YR	~ 500	
	MARLBORO		63,825	~ 6.4 T/AC/YR	~ 15,000	
	DARLINGTON		83,970	~ 5.1 T/AC/YR	~ 18,000	
	FLORENCE		100,125	~ 2.5 T/AC/YR	~ 5,000	
	MARION		99,200	~ 3.0 T/AC/YR	~ 2,000	
	WILLIAMSBURG		29,220	~ 2.2 T/AC/YR	~ 600	
	GEORGETOWN		17,610	~ 2.6 T/AC/YR	0	
	DILLON		5,100	~ 1.6 T/AC/YR	0	
TOTAL		1,486,471	415,110	~ 4.0 T/AC/YR	~ 41,100	2.80%

	COUNTIES	SPECIALITY CROPS (ACRES)	COTTON (ACRES)	GRAIN CROPS (CORN, SOYBEANS, & SMALL GRAINS) (ACRES)	FERTILIZER USE (TONS)	FERTILIZER (TONS)/HU UNIT ACRE
	DILLON	1,000	3,050	15,020	5,610	
	CHESTERFIELD	1,200	570	14,925	6,680	
	MARLBORO	4,250	27,380	40,410	14,050	
	DARLINGTON	3,815	18,000	77,025	26,655	
	FLORENCE	7,700	6,450	94,300	23,060	
	MARION	2,830	2,040	25,450	7,290	
	WILLIAMSBURG	620	2,990	4,625	3,740	
	GEORGETOWN	230	180	1,420	560	
TOTAL		21,645	60,660	273,175	87,645	0.059

	COUNTIES	CONFINED ANIMALS (AU)	LIVESTOCK ON PASTURES, (AU)	TOTAL POULTRY & LIVESTOCK (AU)	ACRES IN HY. UNIT PER ANIMAL UNIT	
	DILLON	2,610				
	CHESTERFIELD	15,260				
	MARLBORO	2,450				
	DARLINGTON	5,450				
	FLORENCE	1,270				
	MARION	2,280				
	WILLIAMSBURG	50				
	GEORGETOWN	150				
TOTAL		29,520	15,000	44,520	33	

	COUNTIES	CROPLAND (CULTIVATED)	GRASSLAND ESTIMATED	URBAN, SMALL & LARGE BUILT UP	RURAL TRANS. ROADS & RAILROADS	
	DILLION	16,060	560	510	1,540	
	CHESTERFIELD	63,825	31,575	11,360	9,225	
	MARLBORO	83,970	10,800	10,620	7,110	
	DARLINGTON	100,125	12,150	21,840	8,250	
	FLORENCE	99,200	6,450	23,100	8,050	
	MARION	29,220	7,560	6,300	5,040	
	WILLIAMSBURG	17,610	990	130	1,430	
	GEORGETOWN	5,100	100	2,140	1,280	
TOTAL		415,110	70,185	76,000	41,925	

Waccamaw Watershed
03040206

Horry County

Loris

060

102

130

110

North Myrtle Beach

090

Conway

120

140

Myrtle Beach

Bucksport

150

Surfside Beach

Murrells Inlet

Georgetown County

11-digit Watersheds
County Boundaries
Streams
Lakes
City Boundaries

N

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Waccamaw Watershed (03040206)

Watershed Characteristics

Land Cover (1989-90 data)

63% Forest
17% Forested Wetland
7% Urban/Built up
5% Agriculture/Grass
5% Scrub/Shrub
2% Water
1% Non-forested Wetlands
<1% Barren

Biodiversity/Habitat

✦ 318 known rare, threatened, and endangered species community locations

✦ The Waccamaw was determined to be a "Watershed Hot Spot" having 10 or more at-risk freshwater fish and mussel species in a nation-wide analysis. This was the only watershed in South Carolina identified as a hot spot.(The Nature Conservancy (1998). *Rivers of Life: Critical Watersheds for Protecting Freshwater Biodiversity*.).

✦ The Waccamaw was determined to be a "Critical Watershed for Conservation" in a nation-wide analysis of vulnerable fish and mussel species. Of the close to 2,100 8-digit watersheds in the country, 327 were identified as critical for conservation. Protecting these critical watersheds will conserve populations of all freshwater fish and mussel species at risk in the United States.(The Nature Conservancy (1998). *Rivers of Life: Critical Watersheds for Protecting Freshwater Biodiversity*.).

Water Supply Intakes

✦ 3 Municipal surface water intakes, including:
Grand Strand Water & Sewer Authority
City of Georgetown
Georgetown County Water & Sewer District

Local Governments

✦ *2 Counties*: Horry, Georgetown
✦ *7 Municipalities*: Loris, North Myrtle Beach, Conway, Myrtle Beach, Bucksport, Surfside, Murrells Inlet

Citizens' Groups

✦ Coastal Conservation League, Georgetown County League of Women Voters, The Nature Conservancy - Georgetown

Water Quality Information

Water Quality Data

✦ 71% of assessed waters are impaired

Causes of impairment (some waters are impaired by multiple pollutants):

✧ 65% low dissolved oxygen
✧ 35% fecal coliform bacteria
✧ 29% pH
✧ 6% zinc
✧ 6% unknown (aquatic life)

Potential Sources of Water Quality Impairment/Problems

✦ 21 NPDES permitted dischargers

✦ Level of compliance with forestry best management practices (BMPs) (based on data for physiographic regions):

- ✧Compliance with site preparation BMPs: 98%
- ✧Compliance on harvested sites: 94%

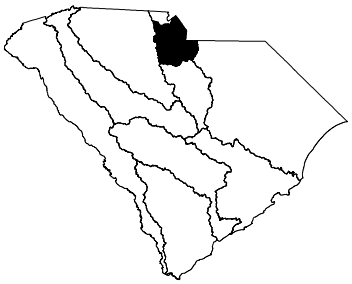
✦ Major nonpoint source contributions may include:

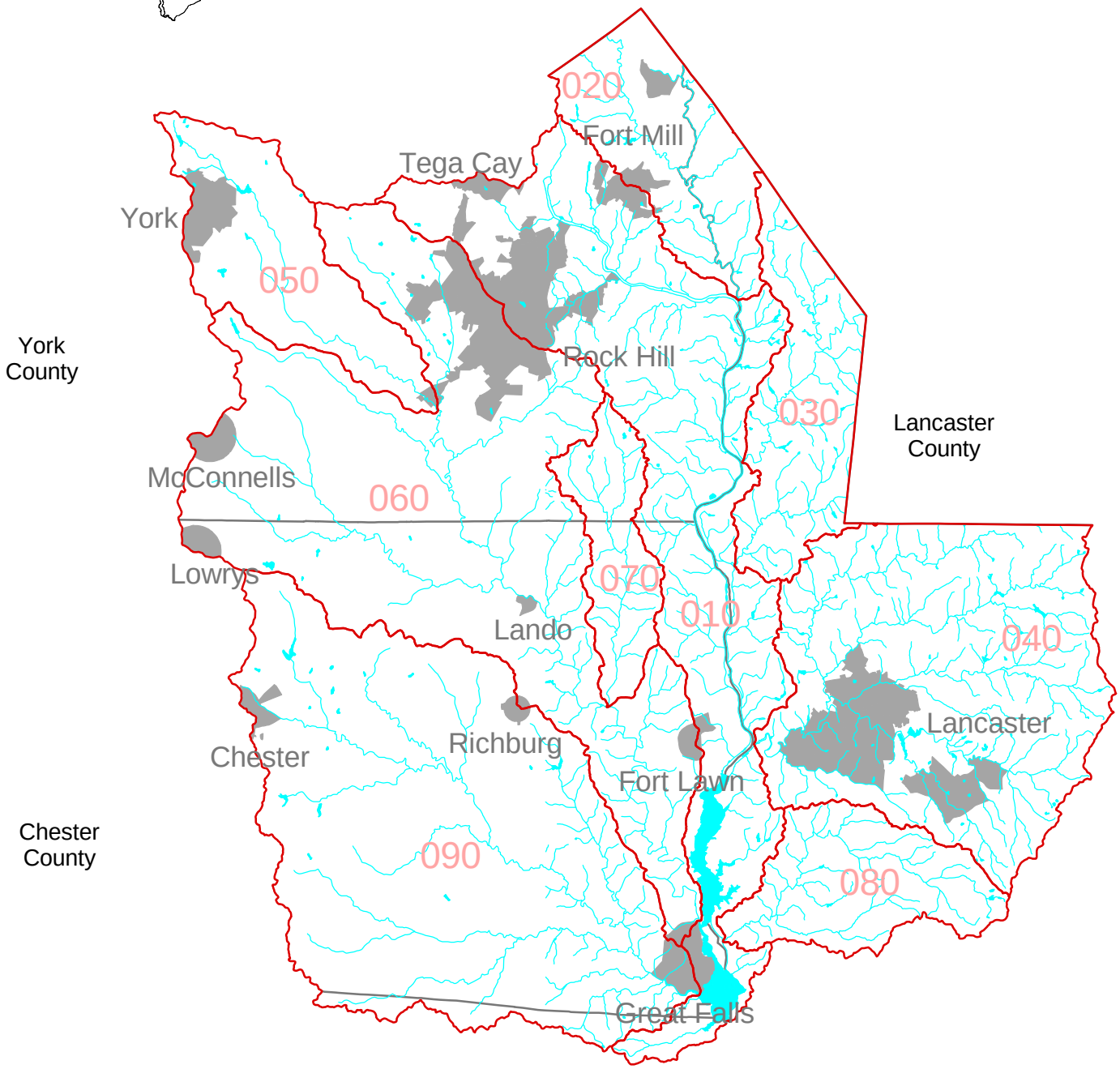
- ✧ runoff from urban areas and roads
- ✧ effluent from failed septic tank systems
- ✧ construction
- ✧ lawn fertilization
- ✧ golf courses (There are approximately 70 (18 hole) golf courses within this area.)

Information on Agricultural Practices

	COUNTIES	HYDROLOGIC UNIT ACRES	ACRES OF CROPLAND	APPROXIMATE AVERAGE EROSION RATE	ACRES > "T" (ESTIMATED)	ACRES > "T" / HYD. UNIT ACRES %
	HORRY		45,250	~ 2.0		
	GEORGETOWN					
TOTAL		381,082	45,250	~ 2.0 T/AC/YR	<50	INSIGNIFICANT
		SPECIALITY CROPS (ACRES)	**COTTON (ACRES)**	**GRAIN CROPS (CORN, SOYBEANS, & SMALL GRAINS (ACRES)**	**FERTILIZER USE (TONS)**	**FERTILIZER (TONS)/ HU UNIT ACRE**
	HORRY	5,000		20,225	9,560	
	GEORGETOWN					
TOTAL		5,000		20,225	9,560	0.025
		CONFINED ANIMALS (AU)	**LIVESTOCK ON PASTURES, (AU)**	**TOTAL POULTRY & LIVESTOCK (AU)**	**ACRES IN HY. UNIT PER ANIMAL UNIT**	
	HORRY	730	490			
	GEORGETOWN					
TOTAL		730	490	1,220	312	
		CROPLAND (CULTIVATED)	**GRASSLAND ESTIMATED**	**URBAN, SMALL & LARGE BUILT UP**	**RURAL TRANS. ROADS & RAILROADS**	
	HORRY	45250	1950	28,900	10,500	
	GEORGETOWN			2,140	320	
TOTAL		45250	1950	31,040	10,820	

Catawba Watershed
03050103





BUREAU OF WATER

D H E C

Catawba Watershed (03050103)

Watershed Characteristics

Land Cover (1989-90 data)

77% Forest
12% Agriculture/Grass
6% Urban/Built up
3% Scrub/Shrub
1% Water (includes 3 minor lakes - Fishing Creek Reservoir, Great Falls Reservoir and Cedar Creek Reservoir)
1% Barren

Biodiversity/Habitat

✦ 134 known rare, threatened, and endangered species community locations
✦ The Catawba was determined to be a "Critical Watershed for Conservation" in a nation-wide analysis of vulnerable fish and mussel species. Of the close to 2,100 8-digit watersheds in the country, 327 were identified as critical for conservation. Protecting these critical watersheds will conserve populations of all freshwater fish and mussel species at risk in the United States.(The Nature Conservancy (1998). *Rivers of Life: Critical Watersheds for Protecting Freshwater Biodiversity.*).

Water Supply Intakes

✦ 3 Municipal surface water intakes, including:
Catawba River WTP
City of Rock Hill
Chester Metro

Local Governments

✦ *4 Counties:* York, Chester, Lancaster, Fairfield
✦ *12 Municipalities:* Fort Mill, Tega Cay, York, Rock Hill, McConnells, Lowrys, Lando, Lancaster, Chester, Richburg, Fort Lawn, Great Falls

Citizens' Groups

✦ *2 active watershed groups:* Catawba River Corridor Implementation Committee, Bi State Catawba River Task Force

Water Quality Information

Water Quality Data

✦ 57% of assessed waters are impaired
Causes of impairment (some waters are impaired by multiple pollutants):
✧ 75% fecal coliform bacteria
✧ 11% dissolved oxygen
✧ 11% phosphorus
✧ 7% unknown (aquatic life)
✧ 4% chromium
✧ 4% zinc
✧ 4% pH

Potential Sources of Water Quality Impairment/Problems

✦ 57 NPDES permitted dischargers

✦ Level of compliance with forestry best management practices (BMPs) (based on data for physiographic regions):

- ✧ Compliance with site preparation BMPs: 65%
- ✧ Compliance on harvested sites: 81%

✦ Major nonpoint source contributions may include:

- ✧ crop production in Chester and York counties along the western edge of the watershed
- ✧ confined animals (number of confined turkey operations, in particular, is increasing)
- ✧ runoff from urban areas, construction sites, developing areas, and roads

✦ A significant portion of the pollutants in the Catawba River are believed to be coming from North Carolina through Sugar Creek.

Information on Agricultural Practices

	COUNTIES	HYDROLOGIC UNIT ACRES	ACRES OF CROPLAND	APPROXIMATE AVERAGE EROSION RATE	ACRES > "T" (ESTIMATED)	ACRES > "T" / HYD. UNIT ACRES %
	CHESTER		4,980	~ 6.0 T/AC/YR	~ 3,750	
	LANCASTER		7,500	~ 10.9 T/AC/YR	~1,000	
	YORK		25,675	~ 8.0 T/AC/YR	~ 8,500	
TOTAL		593,596	38,155	~ 8.3 T/AC/YR	~ 12,550	2.10%

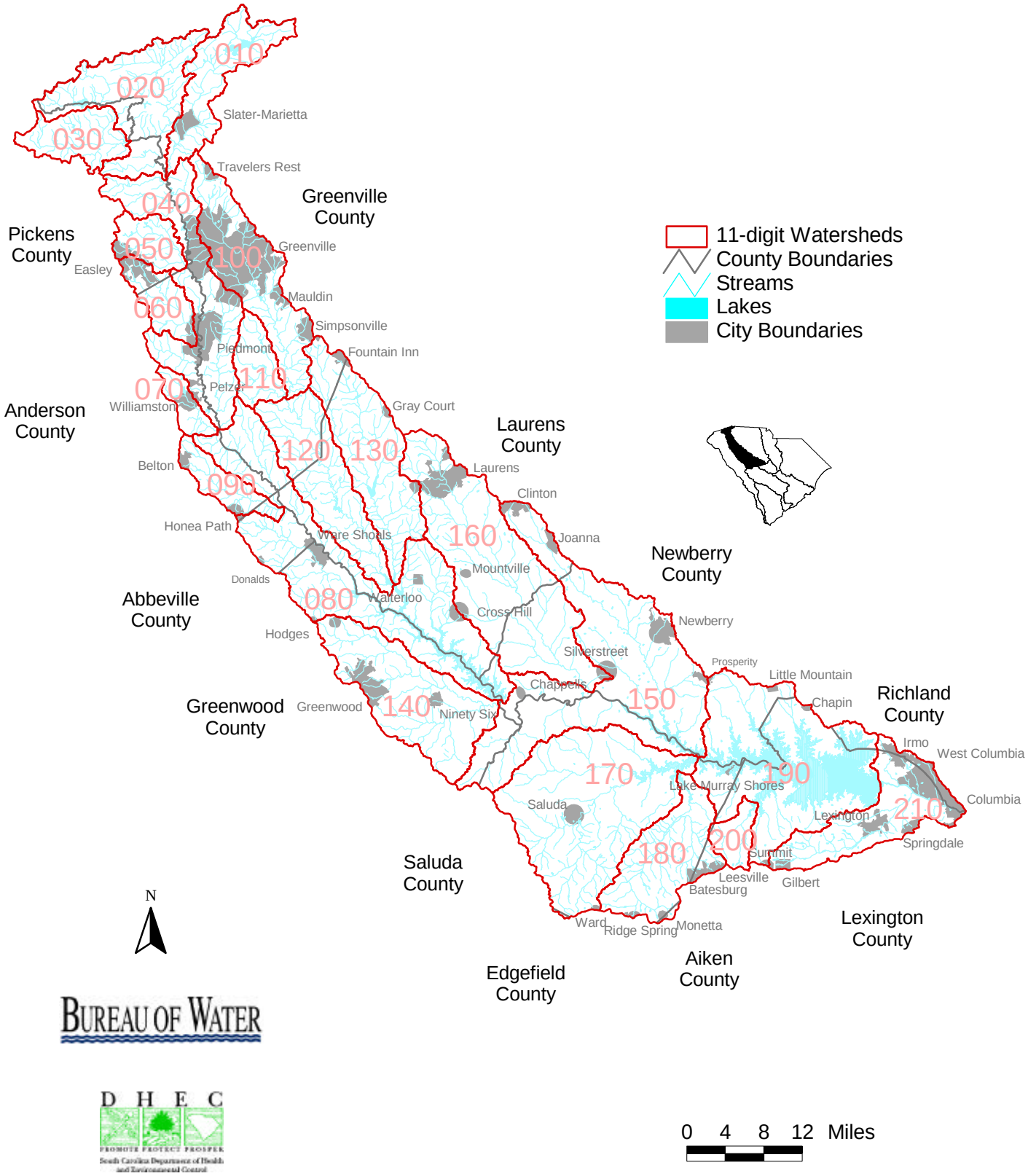
		SPECIALITY CROPS (ACRES)	COTTON (ACRES)	GRAIN CROPS (CORN, SOYBEANS, & SMALL GRAINS (ACRES)	FERTILIZER USE (TONS)	FERTILIZER (TONS)/ HU UNIT ACRE
	CHESTER	30	1,170	1,800	2,960	
	LANCASTER	20	100	1,100	2,005	
	YORK	300	4,000	2,990	4,880	
TOTAL		350	5,270	5,890	9,845	0.017

		CONFINED ANIMALS (AU)	LIVESTOCK ON PASTURES, (AU)	TOTAL POULTRY & LIVESTOCK (AU)	ACRES IN HY. UNIT PER ANIMAL UNIT
	CHESTER	2,685			
	LANCASTER	9,700			
	YORK	14,055			
TOTAL		26,440	19,490	45,930	13

		CROPLAND (CULTIVATED)	GRASSLAND ESTIMATED	URBAN, SMALL & LARGE BUILT UP	RURAL TRANS. ROADS & RAILROADS
	CHESTER	4,980	31,140	8,350	5,340
	LANCASTER	2,800	34,000	13,780	5,550
	YORK	25,675	50,440	33,180	6,400
TOTAL		33,455	115,580	55,310	17,290

	NITROGEN APPLICATION (TONS OF N/ ACRES) IN HYDROLOGIC UNIT		PHOSPHORUS APPLICATION (TONS OF P/ ACRES) IN HYDROLOGIC UNIT			
	0.00405		0.00139			

Saluda Watershed
03050109



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South Carolina Department of Health and Environmental Control

Saluda Watershed (03050109)

Watershed Characteristics

Land Cover (1989-90 data)

59% Forest
16% Agriculture
11% Scrub/Shrub
9% Urban
4% Water

Biodiversity/Habitat

✦ 503 known rare, threatened, and endangered species community locations
✦ The Saluda was determined to be a "Critical Watershed for Conservation" in a nation-wide analysis of vulnerable fish and mussel species. Of the close to 2,100 8-digit watersheds in the country, 327 were identified as critical for conservation. Protecting these critical watersheds will conserve populations of all freshwater fish and mussel species at risk in the United States.(The Nature Conservancy (1998). *Rivers of Life: Critical Watersheds for Protecting Freshwater Biodiversity.*).

Water Supply Intakes

✦ 12 Municipal Surface water Intakes, including:

Belton Honea Path
Columbia City
Easley Combined Utility
Greenville Water System (2 intakes)
Greenwood CPW
Laurens CPW (3 intakes)
Lexington City
Newberry City
West Columbia City

Local Governments

✦ *12 counties:* Pickens, Greenville, Anderson, Laurens, Newberry, Abbeville, Greenwood, Saluda, Edgefield, Aiken, Lexington, Richland
✦ *46 municipalities:* Batesburg, Belton, Cayce, Chapin, Chappells, Clinton, Columbia, Cross Hill, Donalds, Easley, Fountain Inn, Gilbert, Gray Court, Greenville, Greenwood, Hodges, Honea Path, Irmo, Joanna, Lake Murray Shores, Laurens, Leesville, Lexington, Little Mountain, Mauldin, Monetta, Mountville, Newberry, Ninety Six, Pelzer, Piedmont, Prosperity, Ridge Spring, Saluda, Silverstreet, Simpsonville, Slater-Marietta, Springdale, Summit, Travelers Rest, Walterloo, Ward, Ware Shoals, West Columbia, Williamston

Citizens' Groups

✦ *5 citizens' groups:* Friends of the Reedy River, Bush River/Camping Creek, Foothills Canoe Club, Natureland Trust, Perception Kayak Club

Water Quality Information

Water Quality Data

✦ 29% of assessed waters are impaired

Causes of impairment (some waters are impaired by multiple pollutants):

✧ 66% fecal coliform bacteria
✧ 13% phosphorus
✧ 11% pH
✧ 11% DO
✧ 5% unknown (aquatic life)
✧ 5% chromium
✧ 3% zinc
✧ 3% pesticides

Potential Sources of Water Quality Impairment/Problems

✦ 154 NPDES permitted dischargers

✦ Level of compliance with forestry best management practices (BMPs) (based on data for physiographic regions):

- ✧Compliance with site preparation BMPs: 65-100%
- ✧Compliance on harvested sites: 63-81%

✦ Major nonpoint source contributions may include:

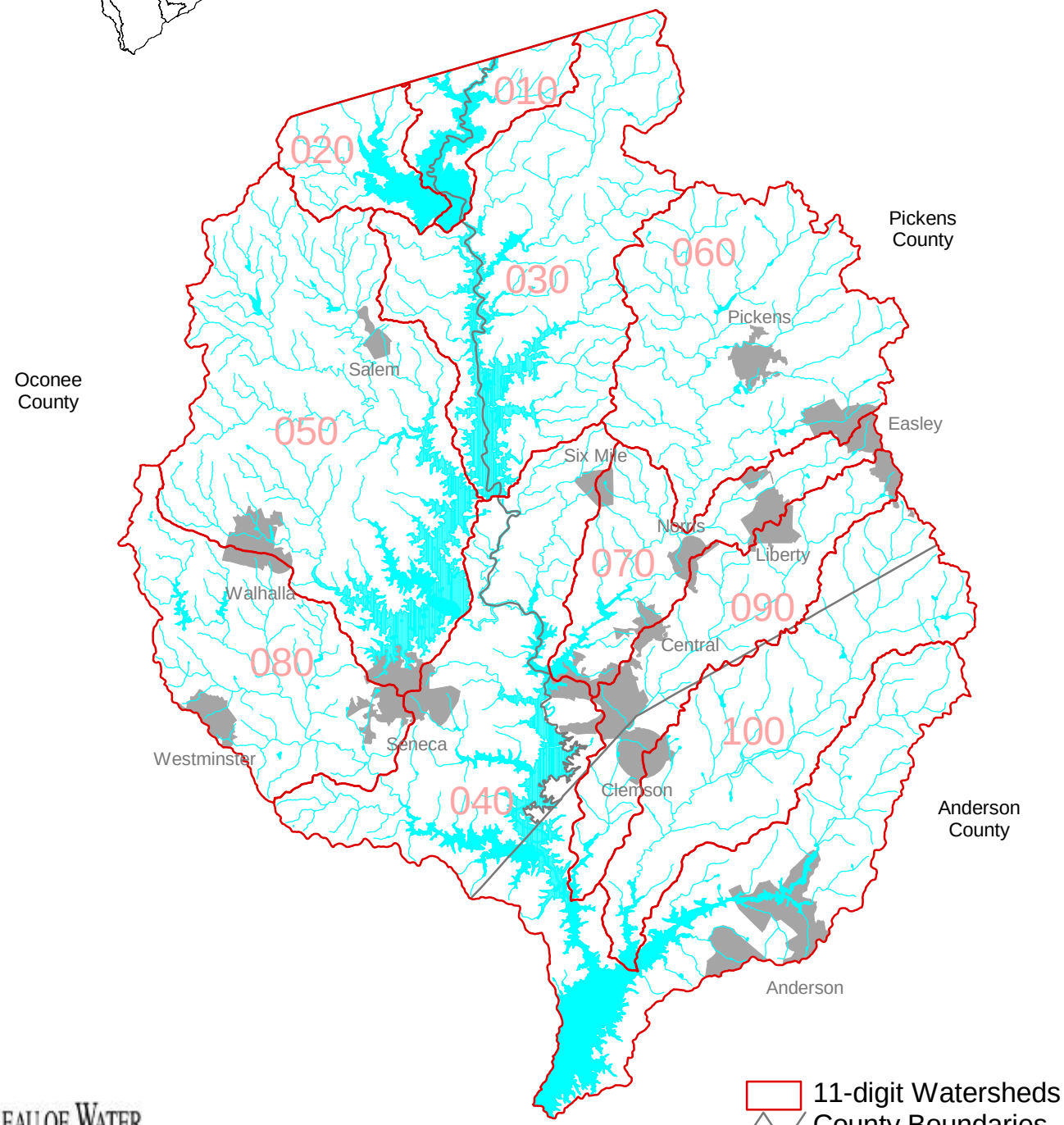
- ✧construction activities
- ✧runoff from over-fertilized lawns
- ✧streambank erosion caused by changes in peak flow in urban areas
- ✧inadequate animal waste management systems
- ✧livestock access to streams
- ✧runoff from development and roads
- ✧runoff from truck farming and other agricultural operations
- ✧failed septic systems
- ✧improperly constructed logging roads, skid trails, waterbars, turnouts, roadbanks, stream crossings, and mechanical site preparation on forestland.
- ✧pet and wildlife waste
- ✧inflow/infiltration of sanitary sewer lines

Information on Agricultural Practices

	COUNTIES	HYDROLOGIC UNIT ACRES (ESTIMATED)	ACRES OF CROPLAND	APPROXIMATE AVERAGE EROSION RATE	ACRES > "T" (EST.)	ACRES > "T" / HYD. UNIT ACRES %
	ABBEVILLE	30,730	1,420	6.0	250	
	ANDERSON	134,168	13,455	7.4	7,500	
	GREENVILLE	252,189	20,345	7.9	5,000	
	GREENWOOD	134,168	730	3.2	215	
	LAURENS	255,189	13,675	5.3	6,240	
	LEXINGTON	134,168	16,770	2.8	7,200	
	NEWBERRY	242,189	17,745	3.1	9,000	
	PICKENS	129,168	5,920	4.6	400	
	RICHLAND	16,146	1,150	3.3	50	
	SALUDA	286,481	41,600	7.9	12,000	
TOTAL		1,614,596	132,810	5.9	47,855	3.0%
	COUNTIES	**SPECIALTY CROPS (ACRES)**	**COTTON (ACRES)**	**GRAIN CROPS (CORN, SOYBEANS, & SMALL GRAINS) (ACRES)**	**FERTILIZER USE (TONS)**	**FERTILIZER (TONS)/ HU UNIT ACRE**
	ABBEVILLE	0	0	900	120	
	ANDERSON	2,000	0	3,675	765	
	GREENVILE	2,280	0	1,025	1,475	
	GREENWOOD	0	100	165	155	
	LAURENS	500	0	2,725	1,615	
	LEXINGTON	5,050	580	5,555	555	
	NEWBERRY	200	240	12,460	2,500	
	PICKENS	300	0	590	165	
	RICHLAND	0	0	400	50	
	SALUDA	1,925	1,530	9,550	4,385	
TOTAL		12,255	2,450	37,045	11,785	0.01

	COUNTIES	CONFINED	LIVESTOCK ON	TOTAL POULTRY	ACRES IN HY. UNIT
		ANIMALS (AU)	PASTURES, (AU)	& LIVESTOCK (AU)	PER ANIMAL UNIT
	ABBEVILLE	95	560	655	
	ANDERSON	970	4,775	5,745	
	GREENVILLE	750	3,975	4,725	
	GREENWOOD	225	3,490	3,715	
	LAURENS	955	5,990	6,945	
	LEXINGTON	7,850	1,875	9,725	
	NEWBERRY	7,145	6,320	13,465	
	PICKENS	50	2,700	2,750	
	RICHLAND	0	75	75	
	SALUDA	17,115	1,170	18,285	
TOTAL		35,155	30,930	66,085	24
	COUNTIES	**CROPLAND**	**GRASSLAND**	**URBAN, SMALL &**	**RURAL TRANS.**
		CULTIVATED		**LARGE BUILT UP**	**ROADS &**
					RAILROADS
	ABBEVILLE	1,000	3,290	300	340
	ANDERSON	12,480	36,600	7,500	5,000
	GREENVILLE	13,060	32,289	60,840	8,700
	GREENWOOD	730	16,960	15,660	3,950
	LAURENS	8,580	28,030	13,390	6,240
	LEXINGTON	14,870	11,325	44,940	3,600
	NEWBERRY	13,280	30,200	11,635	4,700
	PICKENS	4,440	20,080	14,960	6,120
	RICHLAND	1,000	425	4,055	470
	SALUDA	30,000	47,000	2,500	7,000
TOTAL		99,440	226,199	175,780	46,120

Seneca/Keowee Watershed
03060101



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D H E C

Seneca/Keowee Watershed (03060101)

Watershed Characteristics

Land Cover (1989-90 data)

69% Forest
17% Agriculture/Grass
8% Water (includes 3 major lakes - Jocassee, Keowee, & Seneca River arm of Lake Hartwell)
6% Urban/Built up
1% Scrub/Shrub

Biodiversity/Habitat

✦ 750 known rare, threatened, and endangered species community locations

Water Supply Intakes

✦ 7 Municipal surface water intakes, including:

Easley Central Water District
Town of Liberty
Seneca
Greenville Water System
Town of Pickens (2)
Walhalla

Local Governments

✦ *3 Counties*: Oconee, Pickens, Anderson
✦ *12 Municipalities*: Anderson, Central, Clemson, Easley, Liberty, Norris, Pickens, Salem, Seneca, Six Mile, Walhalla, Westminster

Citizens' Groups

✦ *2 active watershed groups*: Friends of Lake Keowee Society (FOLKS) and Lake Hartwell Association

Water Quality Information

Water Quality Data

✦ 47% of assessed waters are impaired

Causes of impairment:

✧ 57% fecal coliform bacteria
✧ 33% zinc and/or copper
✧ 10% unknown (aquatic life)

Potential Sources of Water Quality Impairment/Problems

✦ 48 NPDES permitted dischargers
✦ Level of compliance with forestry best management practices (BMPs) (based on data for physiographic regions):

✧Compliance with site preparation BMPs: 65 - 100%
✧Compliance on harvested sites: 63 - 81%

✦ Major nonpoint source contributions may include:

- ✧effluent from septic tanks
- ✧construction activity
- ✧livestock access to streams
- ✧improperly constructed logging roads, skid trails, decks, waterbars, turnouts, roadbanks, and stream crossings on forestland
- ✧runoff from development and roads
- ✧lack of floodplain management

Information on Agricultural Practices

#03060101	COUNTIES	HYDROLOGIC UNIT ACRES	ACRES OF CROPLAND	APPROXIMATE AVERAGE EROSION RATE	ACRES > "T" (ESTIMATED)	ACRES > "T" / HYD. UNIT ACRES %
	PICKENS		7,435	~ 4.6 T/AC/YR	~ 2,680	
	OCONEE		4,125	~ 10.6 T/AC/YR	~ 2,000	
	ANDERSON		9,600	~ 7.4 T/AC/YR	~ 5,000	
TOTAL		594,680	21,160	> 7.0 T/AC/YR	~ 9,680	1.60%

		SPECIALITY CROPS (ACRES)	COTTON (ACRES)	GRAIN CROPS (CORN, SOYBEANS, & SMALL GRAINS (ACRES)	FERTILIZER USE (TONS)	FERTILIZER (TONS)/ HU UNIT ACRE
	PICKENS	40		1,000	2,830	
	OCONEE	500		1,150	1,300	
	ANDERSON	30	200	3,000	1,885	
TOTAL		570	200	5,150	6,015	0.01

		CONFINED ANIMALS (AU)	LIVESTOCK ON PASTURES, (AU)	TOTAL POULTRY & LIVESTOCK (AU)	ACRES IN HY. UNIT PER ANIMAL UNIT	
	PICKENS					
	OCONEE	6,790				
	ANDERSON	820				
TOTAL		7,610	14,010	21,620	27	

		CROPLAND (CULTIVATED)	GRASSLAND ESTIMATED	URBAN, SMALL & LARGE BUILT UP	RURAL TRANS. ROADS & RAILROADS	
	PICKENS	7,435	33,635	25,000	10,250	
	OCONEE	4,125	11,075	21,720	6,850	
	ANDERSON	9,600	28,160	15,120	4,140	
TOTAL		21,160	72,870	61,840	21,240	

II.D. Preliminary Long Term-Schedule for Attention to Category I Watersheds

The 25 Category I watersheds in South Carolina will be addressed on an appropriate time-line, taking into account the five year rotating basin schedule, in the following priority order:

Priority 1 Watersheds:	03040201	Pee Dee
	03040206	Waccamaw
	03050103	Catawba
	03050109	Saluda
	03060101	Seneca - Keowee
Priority 2 Watersheds:	03040202	Lynches
	03040205	Black
	03050105	Upper Broad
	03050108	Enoree
	03050202	South Carolina Coastal
	03050206	Four Hole Swamp
	03050208	Broad - St. Helena
	03060103	Upper Savannah
Priority 3 Watersheds:	03040207	Coastal Carolina - Sampit
	03050101	Lake Wylie
	03050104	Wateree
	03050106	Lower Broad
	03050107	Tyger
	03050111	Lake Marion
	03050201	Cooper
	03050205	Edisto
	03050207	Salkehatchie
	03060106	Middle Savannah
	03060107	Stevens
	03060109	Lower Savannah

As the criteria used to determine priority order (e.g. water quality, land use, land management practices, etc.) are not static, but are continually changing, South Carolina reserves the right to revisit these priority rankings and revise them as needed.

Attachment A:
Public Notice

D H E C
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South Carolina Department of Health and Environmental Control

PUBLIC NOTICE

July 31, 1998

USDA NRCS
Natural Resources Conservation Service

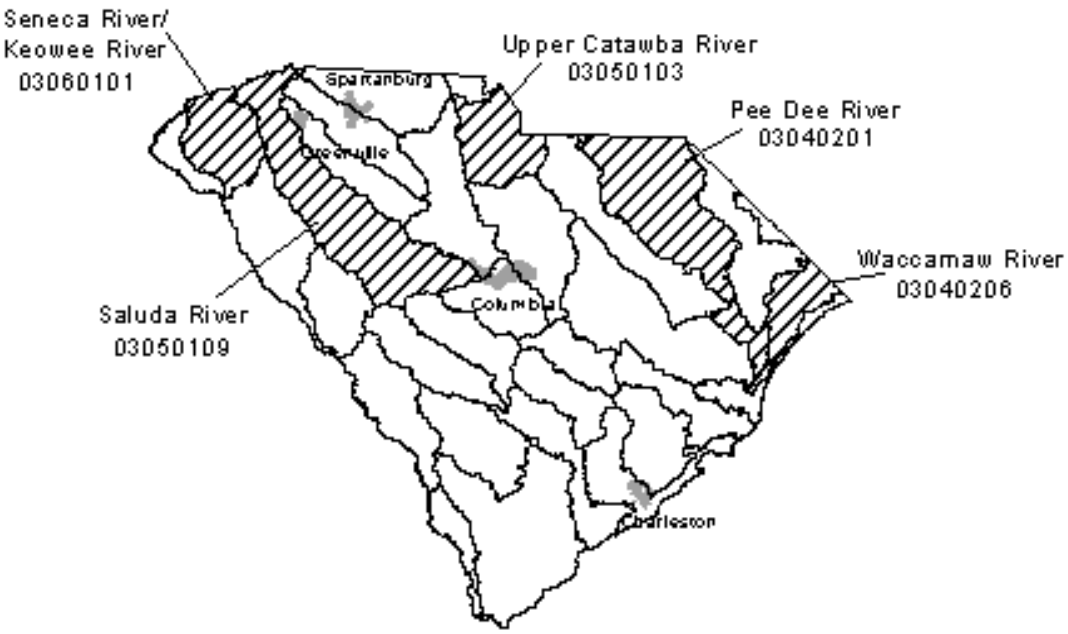
To: Interested Parties

Subject: South Carolina's Unified Watershed Assessment Process and Priorities for Restoration in 1999-2000

The federal *Clean Water Action Plan* (*Plan*) was released this spring by the US Environmental Protection Agency (EPA), the US Department of Agriculture (USDA), and other federal agencies. This *Plan* called upon the South Carolina Department of Health and Environmental Control (SC DHEC) and the USDA Natural Resources Conservation Service (NRCS) to convene a process for developing a Unified Watershed Assessment (UWA) for South Carolina. The goal of the UWA is to identify watersheds in the state that do not meet clean water and other natural resource goals and those where preventative action is needed to sustain water quality and aquatic resources. In addition, the *Plan* directed the State to define Watershed Restoration Priorities that will be addressed in 1999 and 2000. Pending Congressional approval, additional federal funds may be available in fiscal year 1999 for watershed restoration activities in these priority watersheds, primarily through the Nonpoint Source (319) Program and the Environmental Quality Incentives Program (EQIP).

SC DHEC and NRCS, working with other state and federal agency stakeholders, have completed a Unified Watershed Assessment (UWA) for South Carolina. In addition, five watersheds have been chosen as priorities for restoration in 1999 and 2000. As specified in federal guidance, the 8-digit watershed size was used for this assessment and selection of priorities. The UWA and restoration priorities must be submitted to EPA by October 1, 1998 in order for the State to be eligible for any additional funds associated with the *Clean Water Action Plan*. The five proposed Watershed Restoration Priorities for FY 1999-2000 are shown below:

FY 1999-2000 SC Watershed Restoration Priorities (Proposed)



SC DHEC and NRCS request that any additional information about natural resources in these priority watersheds or suggestions for specific watershed restoration strategies in these areas be submitted to either agency at the addresses listed below by August 31, 1998. Also, if you would like to receive further information about new funding available for restoration projects in the priority watersheds in fiscal year 1999, please notify one of the individuals listed below. A copy of the UWA process and results and additional information about the Watershed Restoration Priorities can be obtained by contacting either of the following individuals:

Kathy Stecker
Bureau of Water
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201
Phone: (803) 734-4718
Fax: (803) 734-5355
E-mail: steckemk@columb32.dhec.state.sc.us

or

Walley Turner
USDA NRCS
Strom Thurmond Federal Building
1835 Assembly Street, Room 950
Columbia, SC 29201
Phone: (803) 253-3977
Fax: (803) 253-3670
E-mail: wturner@sc.nrcs.usda.gov

Attachment B:

Responses to the draft *SC Unified Watershed Assessment and Watershed Restoration Priorities* were received from the following agencies, organizations, and individuals:

Catawba Indian Nation
USEPA/USDA (Federal Interagency UWA Action Team)
US EPA Region 4
NC DENR - Division of Water Quality
Lancaster and York Soil & Water Conservation Districts
Pickens County Extension Office, Clemson University
Pickens County Livestock Association
Pickens Soil & Water Conservation District
Greenville-Pickens Farm Service Agency
Greenville County Soil & Water Conservation District
Pickens County Forestry Association
Dennis Chastain, Pickens County citizen

(These comments are not included in the on-line document.)